Applicants' submit herewith the Declaration of co-inventor Samir Bejar under 37 C.F.R. 1.132 (hereinafter "the Bejar Declaration"). The Bejar Declaration states *Streptomyces* sp. SK was isolated from Tunisian soil by the inventors of the present application, that the organism was not made available to the public, and that the nucleic acid sequences isolated from *Streptomyces* sp. SK were not placed into the public domain by the inventors until February 1, 1999. (*See* Bejar Decl., ¶¶ V and VII, *see also* the Specification at p. 35, ln. 29.) Subsequent to filing the application, a morphological, physiological, and chemotaxonomical analysis of *Streptomyces* sp. SK was performed. Based on the morphological, physiological, chemotaxonomical analysis (attached hereto as Exhibit 1), *Streptomyces* sp. SK was identified as likely being *Streptomyces thermodiastaticus*. However, the identification of *Streptomyces* sp. SK as *Streptomyces thermodiastaticus* was not made know to the public domain by Applicants. In addition, none of cited references disclose the identification of *Streptomyces* sp. SK as *Streptomyces thermodiastaticus*.

It is therefore respectfully submitted that Belguith et al. does not teach or suggest the claimed invention because the disclosure of an isolated nucleic acid, without any sequence information, does not provide an artisan with the reasonable expectation of obtaining the claimed DNA sequences when no information is provided about where such DNA sequence could be obtained or isolated from.

In view of the above, reconsideration and withdrawal of the both the §102 and §103 rejections are respectfully requested. It is also respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: April 17, 2001

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Exh. 1

DSMZ
Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH

Ihr Zeichen / Your ref. | Unser Zeichen / Our ref. | Tel. 05 31 / 26 16 - | Datum/Date November 23, 1999

Identification of one actinomycete strain NN049490 (99-887)
Your order dated August 27, 1999

Result of the identification:
NN049490 = *Streptomyces thermodiastaticus*

Dear Ms. Schulz,

Please find enclosed a table listing the results of our morphological, physiological, chemotaxonomical analyzes of your strain and the phylogenetic data which are based on the comparison of the partial sequences of the 16S rRNA gene which were determined by direct sequencing of the PCR amplified 16S rDNA. This sequence was compared with all currently available sequences of streptomycetes. In addition you will find a gas chromatogram and the result of the comparison of the fatty acid pattern of your strain with the data of our fatty acid data base.

Based on the chemotaxonomic results we could identify your isolate as a streptomycete. The strains showed LL-diaminopimelic acid as the diagnostic diamino acid of the peptidoglycan. This diamino acid distinguishes species of the genus *Streptomyces* from all other actinomycetes. In addition it synthesized the typical iso/anteiso-branched fatty acid pattern which is diagnostic for *Streptomyces*.
For species identification the 16S rDNA of 99-887 has been sequenced and compared with all sequences available today. Although this is the most reliable method in bacterial taxonomy today it is often not possible to identify streptomyces to species level by this method

Gesellschafterin:
Prof. Dr. Erko Stackebrandt

Aufsichtsratsvorsitzender:
MR Dr. Axel Kollmorgen

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alone. Therefor additional criteria have been employed e.g.:
(1) ISP criteria (International Streptomyces Project) i.e. spore chain morphology, color of aerial and substrate mycelium, production of diagnostic exopigments or melanin and utilization of 9 sugars
(2) Kämpfer's taxonomic study of 821 streptomycetes which is based on the utilization of 96 most diagnostic substrates. The utilization patterns were then compared with those stored in the physiological data base (see encl.).
(3) Comparison of the fatty acids of the isolate 99-887 with the actinomycetes fatty acids pattern stored in our fatty acid data base.

The 16S rDNA sequence of 99-887 showed the highest similarity to the type strains of *Streptomyces thermodiastaticus* DSM 40573 (99.7%).

The physiological test results of Kämpfer et al. (1991), JGM 1831-1891 gave no clear results. 99-887 was classified to the *S. violaceus*, *S. violaceusniger* and *S. rochei* cluster. This problem always appear when thermophilic streptomycetes are incubated because of the drying out of the dwells. The S. rochei cluster includes *S. thermodiastaticus* (see enlosure). The fatty acid pattern of the strain showed the typical streptomyces pattern and it was identified as *Streptomyces thermoviolcaeus* which confirms the 16S rDNA sequencing data because *S. thermodiastaticus* belongs to the same cluster (see encl.).

We have compared the conventional markers (ISP-criteria) of 99-887 with those published in the IJSB (see enclosure). The strain were identical in their ISP-markers. The color of mature aerial mycelium was grey, dark brown color of substrate mycelium and a red brown exopigment could be detected. Black melanin pigments could not be determined, neither on peptone-iron agar nor on tyrosine agar. The spore chains were open loops but some spirals could be found in addition (see encl. table).

Based on the 16S rDNA sequence data the morphological, physiological chemotaxonomical test results we could identify the isolate **NN049490** as ***Streptomyces thermodiastaticus***.

Sincerely yours

Reiner M Kroppenstedt

Dr. Reiner M. Kroppenstedt